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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,435	07/19/2000	YOSHIO HAGIHARA	15162/02280	2641

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EXAMINER

TRAN, NHAN T

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,435

Applicant(s)

HAGIHARA ET AL.

Examiner

Nhan T. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) 1-20, 23, 27, 29-39, 44 and 46-79 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21, 22, 24-26, 28, 40-43 and 45 is/are allowed.
- 6) ☒ Claim(s) 80, 81 and 83 is/are rejected.
- 7) ☒ Claim(s) 82 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/19/2000</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species V (Figs. 15, 16 & 66) in the reply filed on 6/21/2004 is acknowledged. Therefore, Claims 21, 22, 24-26, 28, 40-43, 45 and 80-83 which belong to the elected Species V are considered by the Examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 81 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 81 recites the limitation "the first electrode." It cannot be determined to which first electrode being claimed. Is that the first electrode of the first transistor or the first electrode of the second transistor?

The following art rejection is applied to claim 81 as best understood in view of the 112 second paragraph rejection above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 80, 81 & 83 are rejected under 35 U.S.C. 102(e) as being anticipated by M. Loose et al (Self-Calibrating logarithmic CMOS image sensor with single chip camera functionality).

Regarding claim 80, Loose discloses an image sensing apparatus that comprises:

a plurality of pixels, the pixels each including a photoelectric conversion portion (see Fig. 2 for pixel array) that outputs an electric signal produced in accordance with amount of incident light and converted natural-logarithmically and a lead-out path by way of which the electric signal output from the photoelectric conversion portion is fed to an output signal line (see section 2.1), the photoelectric conversion portion comprising:

a photosensitive element (photodiode, Fig. 1),

a circuit for producing a natural-logarithmically converted electric signal, said circuit including a first transistor (M2) having a first electrode electrically connected to a photosensitive element, a second electrode and a control electrode;

a first switching element (S2) provided between the photosensitive element and the first electrode of the first transistor;

a second transistor (M3) having a first electrode, a second electrode and a control electrode, said control electrode of the second transistor receiving an electric signal output from the circuit; and

a controller (Fig. 2) that makes the individual pixels perform image sensing by turning on

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the first switching element (S2) and feeding a first voltage (Vdd) to the second electrode of the first transistor (M2) so that the first transistor operates in a subthreshold region and that turns off the first switching element (S2) for resetting the individual pixels (in calibration mode), said controller temporally feeding a second voltage (a calibration voltage) to the second electrode of the first transistor during the first switching element is turned off said second voltage being different from the first voltage. See section 2.1.

Regarding claim 81, it is apparently shown in circuit configuration in Fig. 1 that first electrode and control electrode of the first transistor (M2) are electrically connected to the control electrode of the second transistor (M3) whenever M2 is ON. Therefore, the claimed limitation is met by such a circuit configuration.

Regarding claim 83, it is also shown by the circuit configuration in Fig. 1 that the control electrode of the first transistor (M2) is insulated with the control electrode of the second transistor (M3) whenever M2 is OFF.

Allowable Subject Matter

4. Claim 82 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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The prior art of record fails to teach or fairly suggest that photoelectric conversion portion further comprises a second switching element provided between the first electrode and the control electrode of the first transistor as required in claim 82.

5. Claims 21, 22, 24-26, 28, 40-43, 45 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claim 21, the prior art of record fails to teach or fairly suggest the limitations of “a second switch connected between the first electrode and control electrode of the first transistor; and a controller that makes the individual pixels perform image sensing by turning on the first and second switches and that detects variations in sensitivity of the individual pixels by turning off the first and second switches and varying a voltage fed to the control electrode and second electrode of the first transistor.”

Regarding claims 22, 24-26 and 28, these claims are allowed as being dependent of claim 21.

Regarding independent claim 40, the prior art of record also fails to teach or fairly suggest the limitations of “a fourth MOS transistor having a first electrode connected to the first electrode of the second MOS transistor, a second electrode connected to the gate electrode of the second MOS transistor, and a gate electrode; and a fifth MOS transistor having a first electrode connected to the gate electrode of the second MOS transistor, a second electrode to which a direct-current voltage is applied, and a gate electrode; and a controller that makes the individual pixels perform image sensing by turning on the first and fourth MOS transistors and turning off the fifth MOS transistor so that the second MOS transistor operates in a subthreshold region below a threshold voltage thereof and that detects variations in sensitivity of the individual pixels

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due to variations in the threshold voltage of the second MOS transistors by turning off the first and fourth MOS transistors and turning on the fifth MOS transistor and then varying a voltage fed to the second electrode of the second MOS transistor.”

Regarding claims 41-43 and 45, these claims are allowed as being dependent of claim 40.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (703) 605-4246. The examiner can normally be reached on Monday - Thursday, 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NT.


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